

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY



(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 26 JAN 2006

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Applicant's or agent's file reference P200301510 WO		FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/DK2005/000078		International filing date (day/month/year) 04.02.2005		Priority date (day/month/year) 06.02.2004
International Patent Classification (IPC) or national classification and IPC B01J13/04				
Applicant BASF AKTIENGESELLSCHAFT				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand 05.12.2005		Date of completion of this report 27.01.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Willsher, C Telephone No. +31 70 340-2649 		

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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-15 as originally filed

Claims, Numbers

1-26 as originally filed

Drawings, Sheets

1/3-3/3 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	5,6,13-15,17-19
	No: Claims	1-4,7-12,16,20-26
Inventive step (IS)	Yes: Claims	
	No: Claims	5,6,13-15,17-19
Industrial applicability (IA)	Yes: Claims	1-26
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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1. In preparing this International Preliminary Examination Report, the comments in the letter dated 04.08.05 have been taken into consideration.
2. Document D1 (EP-A-0 922 449) describes a modified starch dispersion as an encapsulating agent, and the method of encapsulating an active agent with the said encapsulating agent (see, for example, claims 1-21 of D1). The modified starch - specifically waxy maize starch modified with octenylsuccinic anhydride - is dispersed into water and the pH adjusted to 5.5, followed by spray-drying - see Examples 1 and 2b on page 8 of D1. The starch is then redispersed and an active agent is added - orange oil in Example 3, Vitamin E in Example 5. The IPEA takes the view that the redispersed modified starch must exhibit the pH of the former starch dispersion since nothing has been added in Examples 2, 3 or 5 which would substantially alter the pH. This is confirmed at in D1 at page 5, line 43, which states: "The resultant solution is typically adjusted to the desired pH according to its intended end use". This implies that the dispersion of Examples 3 and 5 should have a specific pH. Indeed, D1 indicates that the modified starch can be used in liquid form (page 5, lines 17-18), and so the drying in Example 2 is not always necessary. The subject-matter of present claims 1-4, 7 is thereby known. Furthermore, in Examples 3 and 5, the dispersion containing modified starch and the active agent (orange oil or Vitamin E) is emulsified and subjected to spray-drying, resulting in encapsulation of the active agent within the modified starch. The subject-matter of present claims 8-12, 16, 20-26 is thus known.
3. D1 suggests the pH of the dispersion can be 7 (page 5, line 16), and suggests the addition of an anti-oxidant. The subject-matter of present claims 5, 6, 12, 17 and 18 is this obvious in view of D1. It is not evident from the application documents what technical effect stems from the subject-matter of present claims 13-15, 19. Thus, in view of D1, no inventive step can be acknowledged for the subject-matter of claims 5, 6, 13-15, 19.
4. Claim 13 of US-A-5 720 978 (Document D2) describes a process for the encapsulation of a water-insoluble material in an octenyl succinyl acid modified starch. Prior to encapsulation (which occurs in step c) there exists a dispersion having a pH of 6 (claim 9, which depends on claim 13, step b) of the said material (an active substance) and said starch; this dispersion must be aqueous (cf. Examples of D2). In claim 9, the phrase "water- insoluble material" is interpreted at column 9, lines 21-30, and the phrase "starch hydrolyzate" is interpreted at

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column 3, lines 31-33. The subject-matter of present claims 1-4, 7-11, 20-26 is thereby known.

5. It is not evident from the application documents what technical effect stems from the subject-matter of present claims 5-8, 12-19. Thus, in view of D2, no inventive step can be acknowledged for the subject-matter of claims 5-8, 12-19.
6. Example 2 of US-A-4 035 235 (Document D3) anticipates the subject-matter of present claims 1, 2, 4, 5 and 7. They disclose an aqueous dispersion of n-octenyl succininc anhydride modified waxy maize starch at a pH of 7-8. The alpha amylase, Rhozyme 86L can be regarded as an "active substance" as recited in present claim 1.
7. Present claims 1-4, 7-12, 16, 20-26 are not allowable under Article 33(2) PCT.
8. Present claims 5, 6, 13-15, 17-19 are not allowable under Article 33(3) PCT.
9. The IPEA observes that the present pH range reduces the tendency of foaming in the dispersion, giving rise to certain advantages (page 4, lines 8-14 and 20-22). Since both D1 and D2 employ pH-values lying within the present range, then they would be expected to show the same effects.